

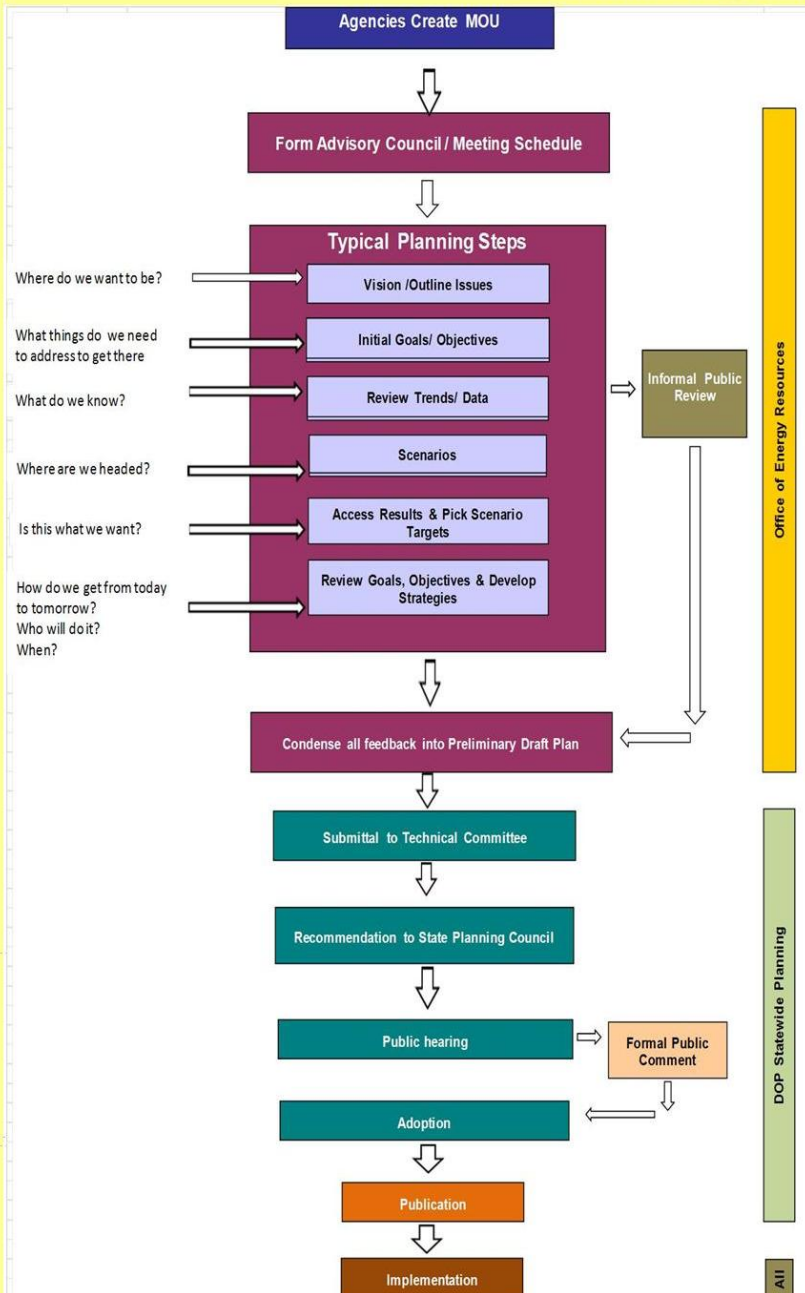
Rhode Island State Energy Plan

Advisory Council Meeting #3

January 24, 2012



A State Guide Planning Process Flow Chart for Rhode Island Energy 2035



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Where do we want to be?

What things do we need to address to get there

What do we know?

Where are we headed?

Is this what we want?

How do we

Meeting 1 (10.31.12)

Meeting 2 (12.20.12)

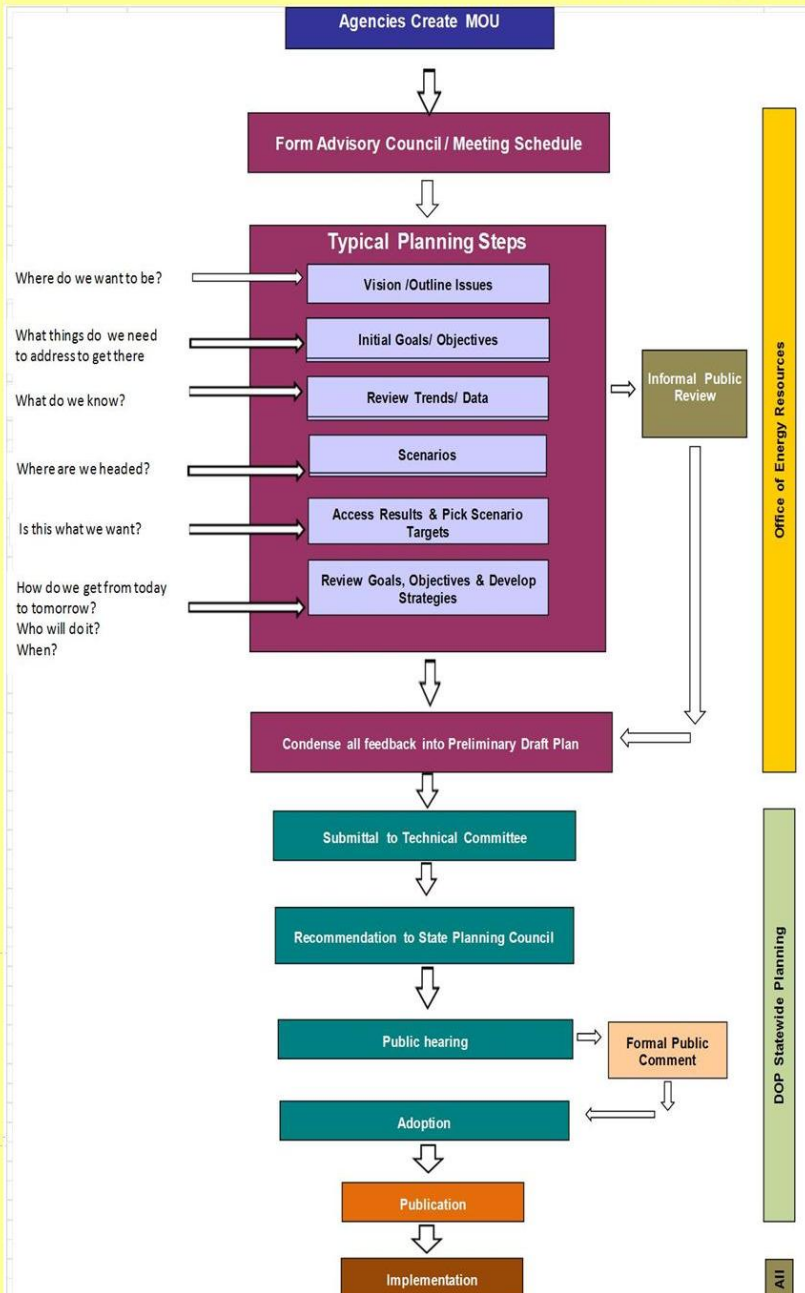
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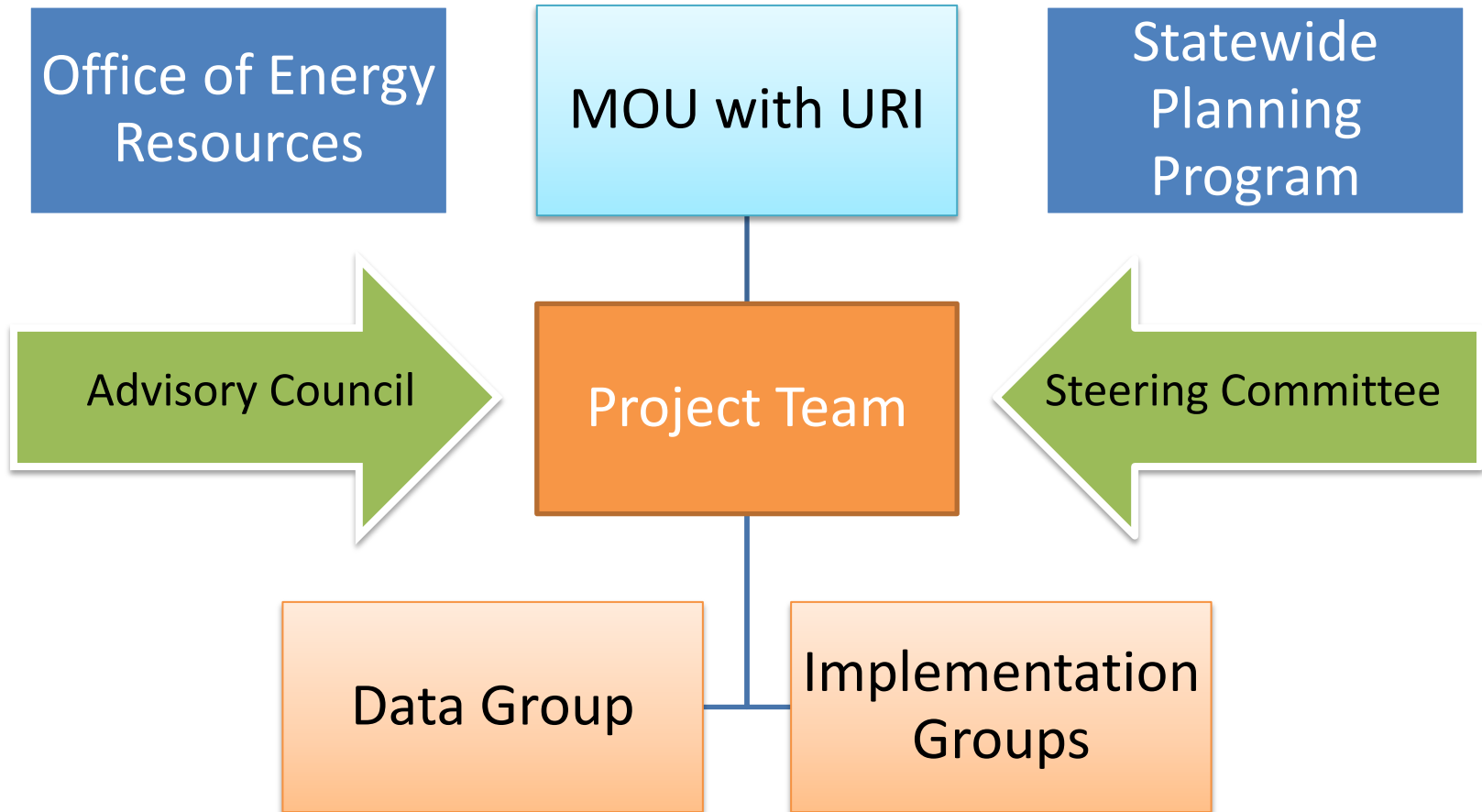
A State Guide Planning Process Flow Chart for Rhode Island Energy 2035



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Advisory Structure



Advisory Structure

Advisory Council

- Meets on a monthly basis
- Evaluates and provides feedback on research to assist staff in preparing a Preliminary Draft Plan
- Recommends Preliminary Draft Plan to the State Planning Council's Technical Committee for forwarding to the State Planning Council for public hearing, revision, and adoption

Timeline

Project Phases

Phase I: Research & Data Collection (December 2012 – May 2013)

Gather and synthesize the best available energy data; Set measurable goals based on modeling analysis and stakeholder feedback; Design an actionable implementation strategy

Phase II: Preparation of Preliminary Draft Plan (June 2013 – September 2013)

Distill research developed during Phase I into a Preliminary Draft Plan

Phase III: Technical & Public Review (October 2013 – March 2014)

Vet Preliminary Draft Plan through a technical and public review process; Adopt Plan as State Guide Plan Element

Advisory Structure

Advisory Council

- Proposed Topic Schedule:

Date	DATA GROUP		IMPLEMENTATION GROUP	
	New	Review	New	Review
October 31, 2012	Scope	<i>N/A</i>	Scope	<i>N/A</i>
December 2012	Baseline	Scope	Goals	Scope
January 2013	Forecast	<i>N/A</i>	<i>N/A</i>	Goals
February 2013	Resources	Baseline, Forecast	<i>N/A</i>	<i>N/A</i>
March 2013	Scenarios	Resources	<i>N/A</i>	<i>N/A</i>
April 2013	<i>TBD</i>	<i>TBD</i>	Transportation	<i>N/A</i>
May 2013	<i>N/A</i>	Scenarios	Thermal	Transportation
June 2013	<i>N/A</i>	<i>N/A</i>	Electricity	Thermal
July 2013	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	Electricity

Today

January Meeting

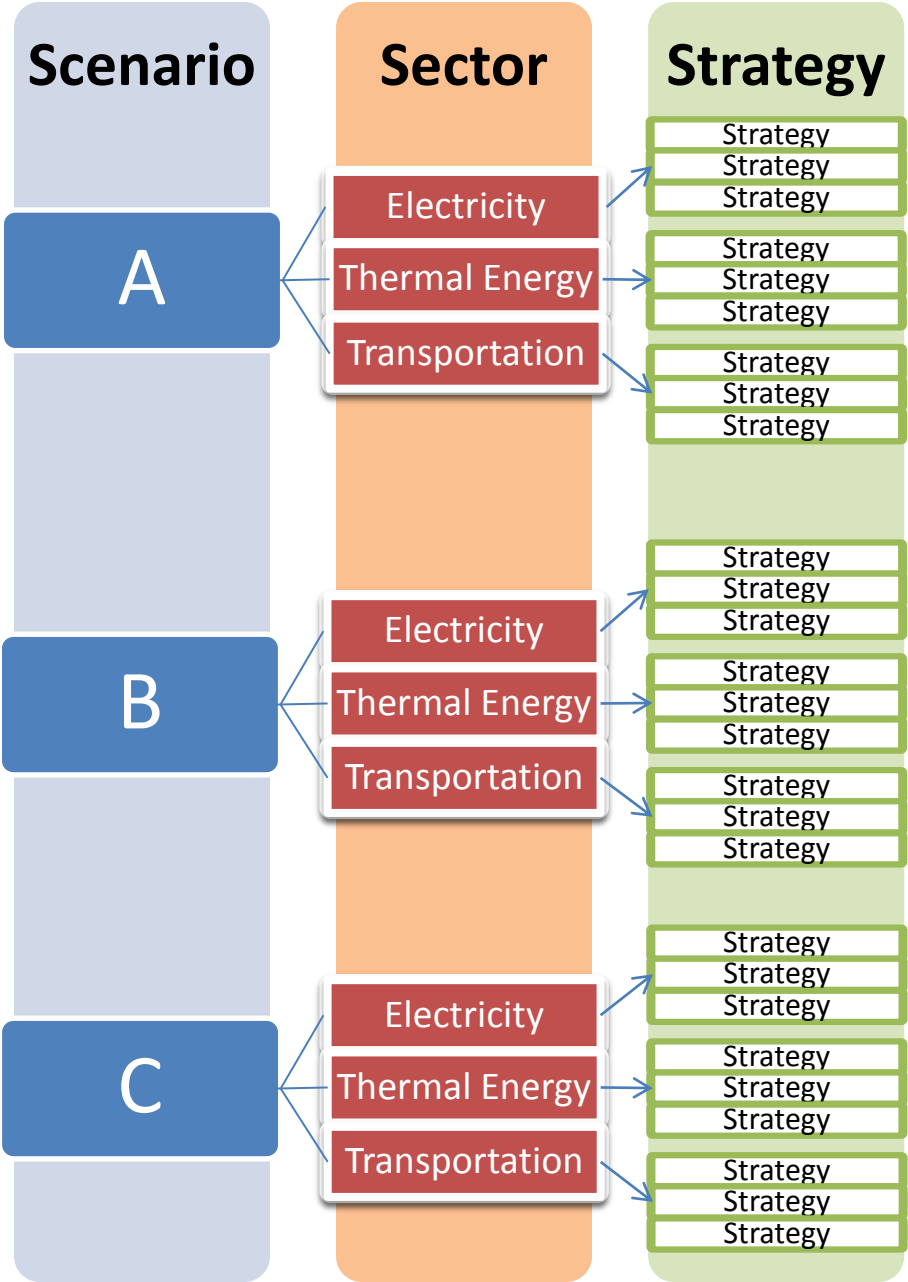
Agenda:

- Presentation of updated directional objectives
- Introduction to detailed scope of work for Task 2: Forecast

Date	DATA GROUP		IMPLEMENTATION GROUP	
	New	Review	New	Review
January 2013	Forecast	N/A	N/A	Goals

Updated Directional Objectives

Modeling Analytical Framework



Directional Objectives (Criteria)

1	2	3	4	5
+	-	+	++	--
++	++	-	-	-
+	--	--	++	+
-	++	-	+	+
++	--	--	++	-
+	--	-	+	+
+	+	++	-	-
-	+	++	--	-
++	++	-	-	+

Revising Directional Objectives

- The Project Team revised the RISEP directional objectives in response to input received at the December Advisory Council meeting:
 - Directional objectives were linked directly to Plan criteria
 - Each directional objective was nested under the applicable Plan criterion
 - Specific metrics were proposed for each directional objective

Updated RISEP Vision Statement

VISION STATEMENT

*“In **2035**, Rhode Island will provide energy services across all sectors—electricity, thermal, and transportation—using a safe, reliable, affordable, participatory, environmentally sound, sustainable energy system that provides benefits to Rhode Island’s economy.”*

Updated Criteria

PLAN CRITERIA	INTENDED OUTCOMES: “The provision of energy services...”
Provide energy services	<ul style="list-style-type: none"> ... Occurs in every sector of Rhode Island’s economy ... Ensures a full range of lighting, comfort, convenience, productivity, and mobility for Rhode Island consumers
Safety & Reliability	<ul style="list-style-type: none"> ... Continues under both ordinary and extraordinary conditions
Affordability	<ul style="list-style-type: none"> ... Provides opportunities for affordable energy bills for all Rhode Island consumers ... Promotes the regional and global competitiveness of Rhode Island business and industry
Participation	<ul style="list-style-type: none"> ... Offers opportunities for Rhode Island consumers to choose and understand how they meet their energy needs
Environmental Protection & Sustainability	<ul style="list-style-type: none"> ... Promotes lifecycle benefits to human and environmental health ... Could continue indefinitely in its current mode (i.e. the system can function in any future year as it does today)
Economic Benefits	<ul style="list-style-type: none"> ... Promotes long-term economic recovery and growth in Rhode Island

Updated Directional Objectives

PLAN CRITERIA	DIRECTIONAL OBJECTIVES	POSSIBLE METRICS
Provide energy services	A. Guarantee adequate overall supply	Supply=Forecasted Demand
Safety & Reliability	B. Increase energy security and system reliability through redundancy, resiliency, and supply assurance strategies	Risk, frequency, and length of supply disruptions; Fuel diversity; Capacity and # of storage or backup power systems
Affordability	C. Lower overall energy bills	Annual expenditure (total, by sector, and per capita)
	D. Decrease the impact of energy price volatility on consumers	Derivative of price
Participation	E. Increase the availability of alternative energy supply options to consumers	Fuel diversity
	F. Increase access to information to make informed energy decisions	Existence of consumption and price signals
Environmental Protection & Sustainability	G. Decrease Rhode Island's contributions to global climate change	GHG emissions
	H. Reduce negative ecosystem impacts	Measures of air quality and land use conversion
Economic Benefits	I. Increase the amount of energy expenditure that stays in-State	Annual in-State expenditure
	J. Increase Gross State Product	GSP
	K. Increase employment	Job-years

RISEP Task 2 - Future State Energy Profile Report Proposed Methodology

RISEP, Advisory Council Meeting

Jan 24, 2013

Rhode Island

Varun Kumar, Policy and Data Analyst and Jamie
Howland, Director, ENE Climate and Energy Analysis
Center (ENE CLEAN Center), Environment Northeast



Scope

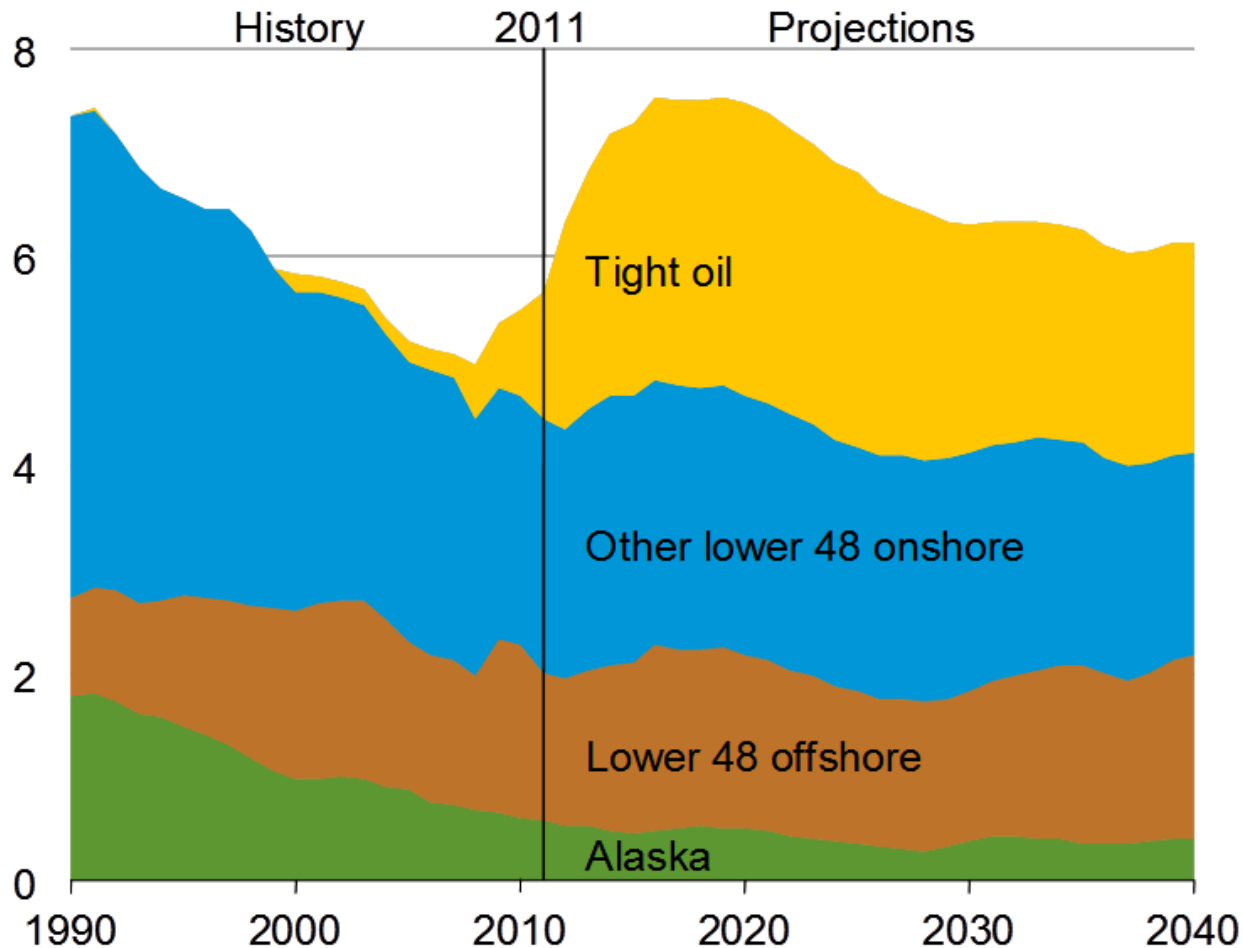
- Energy Parameters – Output of Forecast Model
 - Demand or Consumption
 - Prices
 - Expenditure or Cost
 - Greenhouse gas (GHG) emissions

- Forecast will assume no changes in existing state energy policies.

Forecast Model Input Data

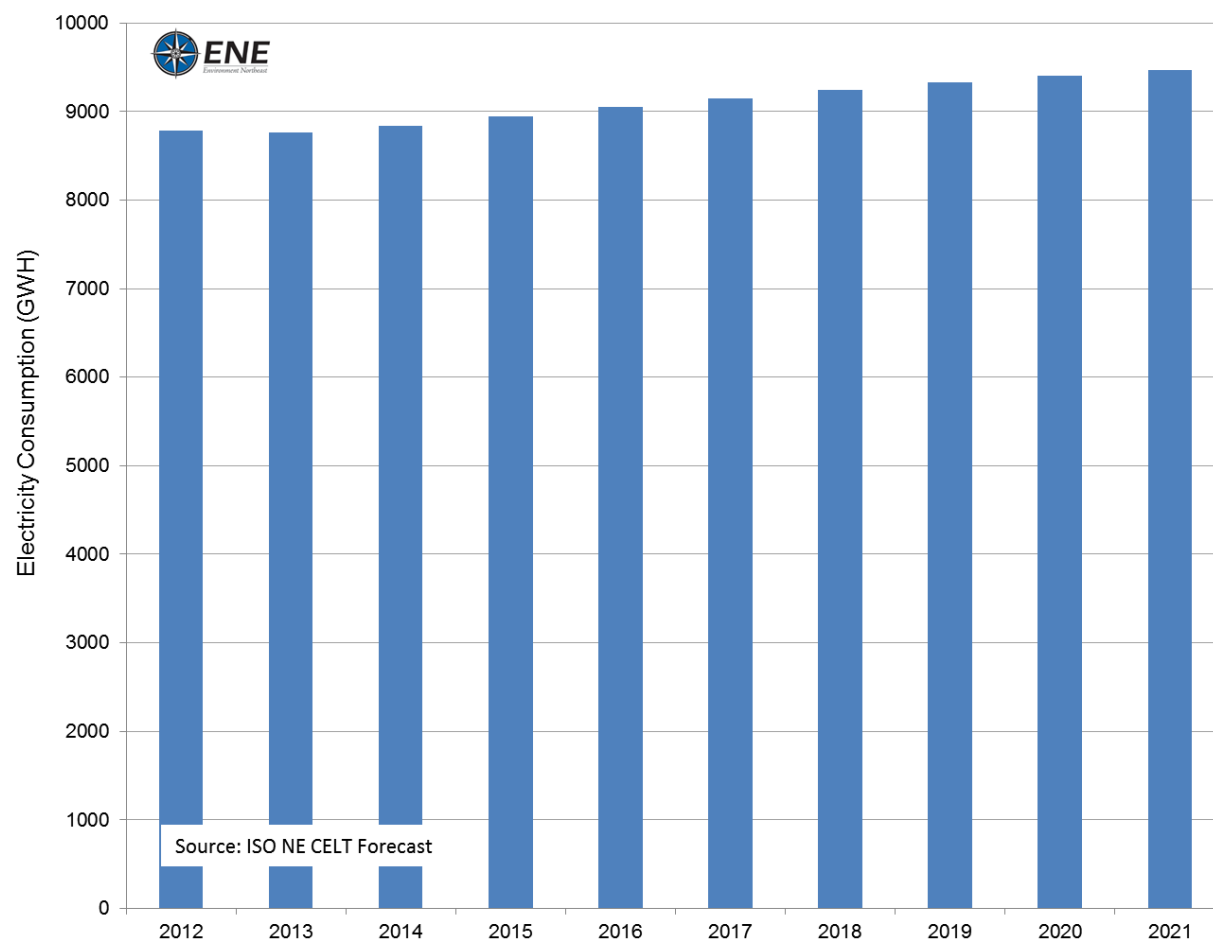
- Baseline data will be from Energy Information Administration (EIA) State Energy Data System (SEDS).
- We will use following sources for projected data :
 - ✓ EIA Annual Energy Outlook (AEO) -
 - ❖ EIA AEO 2013 ER Reference Case – New England specific data through 2040.
 - ❖ EIA AEO 2012 Alternative Cases – New England specific data through 2035.
 - ✓ ISO New England (ISO NE) CELT Report Electricity Demand Forecast – Rhode Island specific data through 2021.

EIA Annual Energy Outlook – Widely accepted for long term energy planning.



Source EIA AEO 2013 ER

ISO NE CELT Report



Forecast Model Methodology

- Input data from EIA AEO and ISO NE CELT report will be used to generate Rhode Island specific data.
- Model will be adjusted to include policy impacts not evaluated by EIA Forecasts.
- Detailed methodology described later for different scenarios.

Policy Impacts in Forecast Model

- Included
 - Rhode Island Comprehensive Energy Conservation, Efficiency and Affordability Act
 - The Rhode Island Petroleum Savings and Independence Advisory Commission proposed targets
- Potential
 - Regional Green House Gas Initiatives New Cap
- Not included
 - Distributed Generation Standard Contract, Long Term Contracting and Net Metering are complimentary to RPS.

Forecasted Scenarios

RISEP BAU Base Case

- This scenario will be based on the AEO 2013 Early Release AEO 2013ER reference case or AEO 2012 proposed CAFÉ Standards (2017 -2035). The AEO case will be adjusted to include the impacts of increase in energy efficiency .

RISEP BAU Low Oil Price Case

- This scenario will differ from the RISEP BAU Base case with a lower price for petroleum-based fuels. It will use the AEO 2012 Low Oil Price case.

RISEP BAU High Oil Price Case

- This scenario will differ from the RISEP BAU Base case with a higher price for petroleum-based fuels. It will use the AEO 2012 High Oil Price case. Further, impacts of the Rhode Island Petroleum Savings and Independence Advisory Commission's recommended targets will be included.

RISEP BAU Low Natural Gas Price Case

- This scenario will differ from the RISEP BAU Base case with a lower price for natural gas. It will use the AEO 2012 Oil and Gas: High Technically Recoverable Resources (TRR) case.

RISEP BAU High Natural Gas price Case

- This scenario will differ from the RISEP BAU Base case with a higher price for natural gas. It will use the AEO 2012 Oil and Gas: Low EUR case.

RISEP BAU Carbon Fee Case

- This scenario will differ from the RISEP BAU case with an applied economy wide carbon fee starting at 15\$ and rising by 5 percent per year from 2013 through 2035.

Energy Sectors



Electricity

- Power Generation - Distillate Fuel Oil, Residual Fuel Oil, Natural Gas and Coal.
- Electricity consumption - Residential, Commercial and Industrial.
- **We will analyze electricity emissions based on both generation and consumption.**



Thermal

- Residential – Liquefied Petroleum Gas (propane), Distillate Fuel Oil (heating oil), Kerosene and Natural Gas.
- Commercial - Liquefied Petroleum Gas, Distillate Fuel Oil, Kerosene Residual Fuel Oil and Natural Gas.
- Industrial - Liquefied Petroleum Gas, Distillate Fuel Oil, Residual Fuel Oil, Natural Gas and Coal.



Transportation

- Liquefied Petroleum Gas, E85 Ethanol, Diesel Fuel, Motor Gasoline, Jet Fuel, Residual Fuel Oil and Natural Gas.

RISEP BAU Base Case Methodology

- AEO's New England energy consumption and price forecast factors will be adjusted based on historical Rhode Island and New England data from EIA to derive Rhode Island-specific forecast for different fuels.
- Energy expenditure will be derived using consumption and price data.
- Greenhouse gas emissions will be derived using consumption and emission factors data.
- ISO NE Rhode Island electricity consumption forecast data will be used through 2021. ENE will forecast data from 2022 through 2035 based on ISO NE and AEO forecast.
- Results derived from the AEO will be adjusted by the impacts of increased energy efficiency:
 - The energy savings targets will be translated into changes in fuel consumption, expenditure and greenhouse gas emissions over the proposed period. Targets are shown in the next slide:




Electric Efficiency

Year	Electric Efficiency Savings Target (Percentage of Sales)	Source
2012	1.7%	RI Energy Efficiency Procurement Plan 2012-14
2013	2.1%	
2014	2.5%	
2015-2021	2.7%	ENE proposed based on KEMA RI Energy Efficiency Opportunity Report
2022-2024	2%	ENE proposed conservative estimate based on anticipated new opportunity.
2025-2035	1%	

Natural Gas Efficiency

Year	Natural Gas Efficiency Savings Target (Percentage of Sales)	Source
2012	0.6%	RI Energy Efficiency Procurement Plan 2012-14
2013	0.8%	
2014	1%	
2015-2017	1%	ENE proposed based on VEIC Optimal Consultant Team RI Opportunity Report.
2018-2020	1%	ENE proposed conservative estimate based on anticipated new opportunity.
2021-2035	0.5%	

Methodology Similar for other scenarios except RISEP BAU High Oil Price Case:

1. Results will be adjusted to achieve a 30% overall reduction in petroleum products consumption from 2007 levels by 2030 and 50% by 2050.

2. Year 2011 consumption will be established as a percentage of 2007 levels.

3. Reductions will then be phased out over the period between 2012 and 2030 uniformly to reach 30% below 2007 levels.

4. Further, reductions will be phased out to reach 50% below 2007 levels by 2050.

Sources

- Comprehensive Energy Efficiency, Conservation, and Affordability Act of 2006, R.I.G.L. § 39-1-27.7, <http://www.rilin.state.ri.us/Statutes/TITLE39/39-1/39-1-27.7.HTM>.
- The Rhode Island Petroleum Savings and Independence Advisory Commission, <http://webserver.rilin.state.ri.us/Statutes/TITLE42/42-140.4/42-140.4-1.HTM>
- EIA AEO 2012 Assumption Document, [http://www.eia.gov/forecasts/aeo/assumptions/pdf/0554\(2012\).pdf](http://www.eia.gov/forecasts/aeo/assumptions/pdf/0554(2012).pdf)
- Based on VEIC Optimal Consultant Team RI Opportunity Report, <http://www.rieermc.ri.gov/documents/RI%20Gas%20Opportunity%20Report%202012.pdf>
- Rhode Island Public Utilities Commission Docket 4202, Electric and Natural Gas Least Cost Procurement Savings Targets for 2012-2014, [http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-Filing\(9-1-10\).pdf](http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-Filing(9-1-10).pdf)
- Based on KEMA RI Energy Efficiency Opportunity Report, <http://www.ripuc.org/eventsactions/docket/4202-EERMC-EST-KEMARept.pdf>

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Next Steps

Next Steps

February Meeting

Questions for the Advisory Council to answer before the meeting:

- *What changes or additions would you like to see to the proposed Task 2: Forecast scope of work?*

→ Emailed responses requested from Advisory Council by Thursday, January 31

Next Meeting

February Meeting

Proposed Agenda:

- Presentation of preliminary results from Task 1: Baseline
- Presentation of preliminary results from Task 2: Forecast
- Introduction to scope of work for Task 3: Resources

Date	DATA GROUP		IMPLEMENTATION GROUP	
	New	Review	New	Review
February 2013	Resources	Baseline, Forecast	N/A	N/A

Dates

Next Advisory Council Meeting Dates

- February 19, 10:30am to 12:30pm